An Analysis Of Student's Reception In An Online Learning Platform (OLP) Using The Technology Acceptance Model (TAM)

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Abstract.
The Technology Acceptance Model (TAM) is becoming more and more popular for understanding the acceptance between the perceived usefulness (PU) of humans and the ease of use of perceived technology (PEOU). This study aims to analyze student acceptance of online learning platforms (OLPs) and determine the appropriate combination they can offer as higher education believes in significant changes in the demand for online learning. Researchers used a quantitative and qualitative approach among 73 information technology students conducted from April to May of the 2021-2022 academic year. The questionnaire used was based on TAM variables and was validated using Cronbach's alpha with a result of 0.727. Regression analysis was applied to identify which variables influence student interests. The results show that the perceived usefulness and visual appeal of the content are statistically significant at a p-value of 0.048. However, with a p-value of 0.716 achieved, it turns out that the perceived usefulness is not important to the perceived ease of use. Future recommendations should consider evaluating other information literacy acquisition variables, such as recognition of external controls such as computer and information anxiety.

Keywords: *Online learning, students' reception, technology acceptance model, online platform and TAM.*

I.   INTRODUCTION

The global pandemic challenges at this moment make the hybrid strategy conceivable. To maintain the function of education in the community, the conventional methods of imparting knowledge have been reformulated into new approaches. Given that the majority of students' are less tech-savvy than their instructors, the move to an online learning environment has become difficult for both teachers and students. (Zhang, Zhao, & Tan, 2008; Al-Adwan, Al-Adwan, & Smedley, 2013) investigated the usage of the technology acceptance model (TAM) in studying the students' acceptance of e-learning in order to assist the academic community. It shows that a student's attitude toward using technology positively may not necessarily be related to an aspect of equivalent importance. As a result, (Sarvetani, Mohammadi, Afshin, & Raeisy, 2019) listed a number of problems with the usage of e-learning, including the difficulties in examining the content, purpose, media, and arrangement of learning materials. Additionally, the research of (Ja'ashan, 2020) discovered that the technical, administrative, and academic problems are major factors in the acceptance of e-learning. Therefore, it is impossible to deny that the advantage of technology is constantly on the route of enhancing the educational system given the favorable outlook on its use and the benefit of accessibility.In the area of information technology, the technology acceptance model (TAM) is a model that is false and is used as a hypothesis. Its goal is to determine how people will adopt and apply the technology.

The TAM's main purpose is to assist in the analysis of the circumstances in terms of behavior intention (BI), which is influenced by attitude (Ping & Liu, 2020). This model's guiding principle asserts that when a user is instructed on how to use new technology, a variety of factors may affect their choice, including perceived usefulness (PU), which measures how confidently users believe they will be able to use the system, and perceived ease-of-use (PEOU), which describes how easily they will be able to use the system. Students who have had some prior exposure to technology in the area of information technology are nevertheless unsure whether to go for an online course or a module-based curriculum. Despite having access to technology, most people still prefer the module-based approach to learning. According to Trokanas and Cecelja's definition of modularization (Trokanas & Cecelja, 2018), this is a trend in educational thinking that shifts toward the outcome-based learning paradigm and is characterized by the use of modules or units that

are completed independently and nonsequentially over a short period of time. Students often use technology to communicate with their professors to ask questions about the sessions, even though they are familiar with the usage of modularization.

This state of affairs demonstrates that the case that needed to be addressed was the conflict over which platform to use.Using the technology acceptance model, this study wants to examine students' reactions to an online mode of learning. Specifically, this study aimed to: determine the demographic profile of the students in terms of the age, gender and experience prior to online learning technologies; determine the reception level of online students with TAM constructs like the perceived usefulness of the content and visual appeal, and perceived ease-of-use; lastly is to find out the significant difference in the reception of online students among the constructs of TAM. Despite that the stated literature already has an exposure of TAM in addressing the issues, the purpose of the study is to still look into the acceptance of technological know-how considering extraordinary fields as the respondents of the study. In this case, it may encourage students to include applied sciences as this has come to be fundamental in the contemporary situation. The output of this learning will end up being considerably to the decision-making physique of the academia as they will be capable of regulating and strengthening policies regarding the issues of online mode of learning.

II.   MATERIALS AND METHOD
Research design

The study employs the technology acceptance model (TAM) in determining the acceptance of online learning technologies. This descriptive and quantitative study aimed to statistically compare the difference in the level of acceptance of the two modes of learning. The study invited 100 volunteered information technology students to respond to the online survey, which was adopted by (Davis, 1989). The 5 point Likert scale was used to evaluate the TAM findings of the online students with three (3) variables: the perceived usefulness of the content and visual appeal; the perceived ease-of-use of interactivity and navigation. Several studies, like (Al-adwan, Al-adwan, & Smedley, 2013), who avoided the computing department as the respondents of the study because they believed that they had the real score in the use of technology. In this case, Table 1 shows the questionnaire's points based on the TAM used in the study.

Table1. Questionnaire's Point based on technology acceptance model (TAM)

TAM Constructs	Questionnaire's Point	Factors
Content	Q1:Completeness of content Q2:Increased understanding of subjects Q3:Informative and useful applications Q4:Just the right amount of information on screen Q5:Found complete content in the apps	Perceived Usefulness (PU)
Visual Appeal	Q1:Suitability of contents from the links Q2:Suitability of colours for the content Q3:Liked the colours of the appearance Q4:Suitability of contents from the links Q5:Interface was appealing Q6:Enjoyed learning from the content uploaded in the apps	Perceived Usefulness (PU)
Interactivity And Navigation	Q1:Ease of navigation Q2:Ease of buttons and links to navigate Q3:Instructions were easy to understand Q4:Important information were easy to find Q5:Liked interaction with apps Q6:Graphics made content easy to understand	Perceived Ease-of-Use (PEOU)

Questionnaire validation

Cronbach alpha, apparently, was used to determine the reliability of the self-constructed questionnaire based on TAM. Having a score of 0.727 Cronbach estimated the internal consistency, reliability, and congruence of the questionnaire used in the study was acceptable (Taber, 2018).

Research participants

In an effort to determine the analysis of students' reception in an online learning environment, the study was conducted among information technology students. The survey was given and answered voluntarily, pursuing the online and module modes of learning. There were a total of 73 students who participated from April to May of the academic year 2021-2022. This study still chose the information technology students since for almost three (3) academic years of 2020-2022, in diverting the model of learning towards e-learning, there were still students who had not chosen the platform of technology despite their capacity.

III.   RESULTS AND DISCUSSION
Result
A.   *Demographic profile of the respondents*

With 73 participants, the majority of them belong to the age range of 21-25 which is 40.88% of the population.   While there were 35.04% female and 18.25% male as respondents of the study. Since they all belong to the information technology department, 100% of the total population perceive that they are versed in online learning technologies.

B.   *The reception level of online students*

In Table 2, it is evident that more of the responses were found on the perceived usefulness of its content *(Q1)* it gained a mean of 22.8. On the other hand, the suitability of the contents from the links gave the most responses from the students in the perceived usefulness-visual appeal *(Q1)* as it gained the mean of 15.2. The ease of navigation struck by the responses of the students as they gained a mean of 8.60 under the construct of PEOU of TAM.

Table 2. Acceptance rate for the online learning platform among students *(N=73)*

TAM	Factors Question	Mean	Std Dev
Perceived Usefulness (PU) Content	Q1	22.8	7.89
	Q2	17.4	5.68
	Q3	10.6	2.19
	Q4	10.8	3.03
	Q5	11.4	6.73
Perceived Usefulness (PU) Visual Appeal	Q1	15.2	5.19
	Q2	12.8	6.62
	Q3	11	8.69
	Q4	10.6	4.08
	Q5	12.8	2.93
	Q6	10.6	3.93
Perceived Ease-Of-Use	Q1	8.60	8.60
	Q2	6.11	6.11
	Q3	5.69	5.69
	Q4	3.06	3.06
	Q5	3.20	3.20
	Q6	3.85	3.85
N=73			
Q1:Question 1			
Q2:Question 2			
Qn			
....			

Fig.1 shows various responses of the students to the three constructs of the technology acceptance model. Here, the results of the standard deviation show the peak and the bottom part of the study.
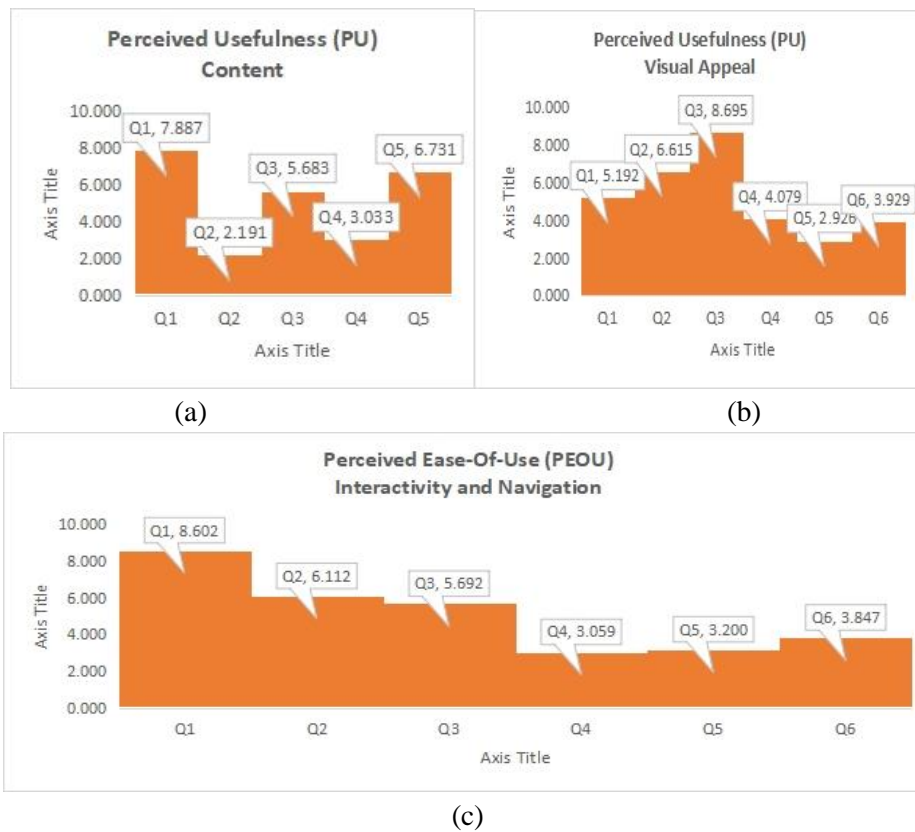
(a)   (b)

(c)

**Fig 1.** Scales of strongly agreed (1-5 Likert)

C.   A Significant Level Test

Understanding the use of new information resources in the academia through TAM can increase knowledge and can likewise lead to better productivity because TAM is based on the information system theory that propagates learner acceptance to achieve information literacy skills (Durodolu, 2016). From the data in Table 3, it shows that learners' reception between PU-Content and PU-Visual Appeal is statistically significant, having a p-value of 0.048. In the 1980s, the study of Fred D. Davis correlated the perceived usefulness and its predicted future usage, and it was found both significant. This was also claimed in the study of (Franco, Ramos, Peral, & Roldan, 2013) that visual design plays a significant role in understanding the concept of the content. In contrast to this (Franco, Ramos, Peral, & Roldan, 2013) also claimed that the strength found from this may also be weakened by the different perspective of the user's intention.The study also examines the significance of the PU-Content as well as the interaction and navigation –PEOU. It shows that the two are not significant as it gained a p-value of 0.936, which is very high from the p-value of 0.05. According to Sombe (2019), the PU-Content and PEOU decreased over time because PU is always considered to be a higher contributory factor and is treated as a critical factor to consider.

Table 3. Test of Significant Level among the technology acceptance model's building blocks

Area of TAM	Significant Level	Remarks
>Perceived Usefulness (PU) on its Content >Perceived Usefulness (PU) on its visual appeal	0.048 (p-value $\leq$ 0.05)	Statistically Significant
>Perceived Usefulness on its Content >Interaction and Navigation (PEOU)	0.936 (p-value $\geq$ 0.05)	Not Significant
> Perceived usefulness on its visual appeal >Interaction and Navigation (PEOU)	0.716 (p-value $\geq$ 0.05)	Not Significant

Fig.2 shows the plot of students' responses in general. This study also says that content is significant to various OLP, followed by its visual appeal and consequently, followed by the interest in the interaction navigational features.
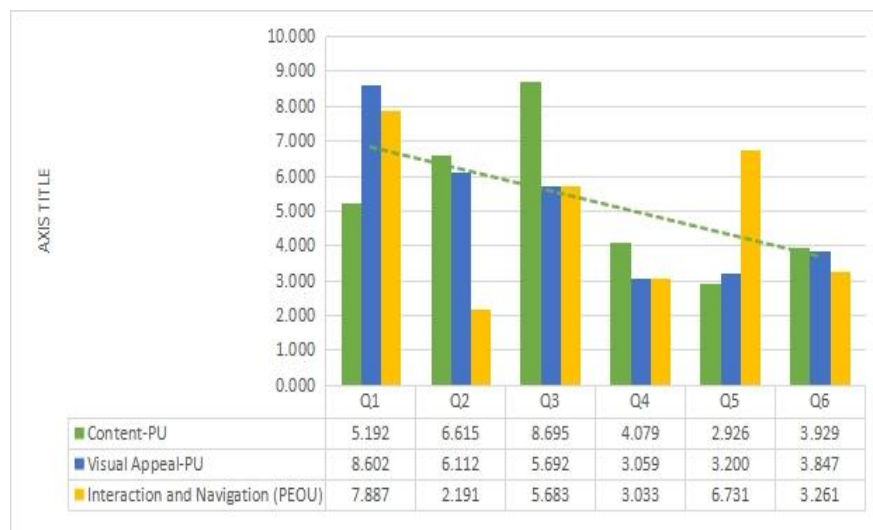
Fig 2. General Assessment of Students' Response

Discussion

The use of Technology Acceptance Model in the analysis of students' reception determines the extent of acceptance of information technology students in the use of an online learning platform.

A.   Demographic profile of the respondents

It is evident in the study that the female is most activated in the undertakings of the study.

B.   Reception level of online students

Among the questions related to the perceived usefulness of the content, it is the completion of the content that receives most of the responses of the students having the general meaning of 22.8. That means, students agreed that the content of lessons in OLT is comprehensive and complete. According to (Kumar, Saxena, & Baber, 2021) if a user is satisfied with the effectiveness of the content, it contributes predominantly towards the successful realization of whatever expected learning outcomes of the subject. It also conforms to the result of the study in (*Q2)* under the perceived usefulness of the content. Several studies (kumar, Saxena, & Baber 2021; Gopal, Singh, & Aggarwal, 2021) have established a significant relationship between the completeness of the e-learning content and the quality of learning from it. Although many factors must be considered, perceived harm to student satisfaction is to be expected when there is no quality of the content, and having no quality of the content also has an effect on student satisfaction (Gopal, Singh, & Aggarwal, 2021).

In terms of the perceived usefulness on the visual appeal of the system, students seem to be satisfied with the suitability of the content from the links as it receives the general responses of 15.2 as the grand mean. According to (Zhu, Xu, Wang, Yan, & Zhao, 2022), appropriate content in the design has an impact on positive learning styles and satisfaction not only for students but also for teachers. On the other hand, ease of navigation was able to receive the mean of 8.60 under the construct of its perceived ease-of-use. In the exploratory study of (Wart, et al., 2020) seven factors were enumerated as the critical success factors for online learning platforms, such as: basic online modality, instructional support, teaching presence, cognitive presence, online social comfort, online interactive mode, and social presence. Wherein, in this study, these factors were enumerated as the success factors for online learning platforms.

C.   A Significant Level Test

To test the likelihood of TAM's constructs the perceived usefulness of the content based and visual appeal found to be significant having the value of 0.048. Among the level tested, it is only the PU-content and PU for visual appeal tested as statistically significant. Although, it shows significance level, the study of (Sanchez-Franco, et al., 2013) stated that variables may also be assessed to extremely study its significance. Meanwhile the perceived usefulness on its content and visual appeal shows not significant when it was tested for it gained more than the significance level of 0.05. This shows that respondents indicate different impressions on the appeal and content. With all the literatures the study found no exact research on the effect of different impressions on the appeal and content. However, the philosophy of the first impressions is often

very important, as this took the final assumptions and judgements (Bhandari, Neben, & Chang, 2015). Additionally, based on the concepts of Event Driven Programming it states that the success of the user interface would also mean for the success of the entire system.Such that, the study demonstrates trust in the usage of online learning tools. However, the study asserts that there were some restrictions in the evaluation of the information literacy, such as the perception of external control like computer and information anxieties.

IV.   CONCLUSIONS

The degree of acceptance of information technology students in the usage of an online learning platform is determined by the application of the Technology Acceptance Model in the analysis of student reception. Such that, 40.88% if the 73 individuals that answered the survey were respondents between the ages of 21 and 25. As study responders, however, females outnumber males by 35.04 percent. Due to the fact that everyone in the population works in information technology, they are all thought to be familiar with online learning technologies. The level of students' reception based on the questionnaire's point of TAM comes with the completeness of the content (PU-mean: 22.8), suitability of colours of the content (PU-mean: 15.2, and ease of navigation (PEOU-mean: 8.60). It is found that perceive usefulness on its content and visual appeal found to be statistically significant with the p-value of 0.048. Apparently, perceived usefulness referring to the applications, content and visual appeal is fount not significant to the interaction and navigation (PEOU) that gained the p-value of 0.716.

V.   ACKNOWLEDGMENT

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